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STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Files

DATE: February 28, 1951

RLF
JMM
WRC
RHW

FROM : K. H. Wright

SUBJECT: Sitka spruce weevil investigations made during the period August 8 - 11, 1950

August 8 On this date reconnaissance trips were taken with Everett Wycoff, resident forester, and Wayne Harris, forester, of Crown's Clatsop tree farm staff. Examination of stands on the highway to Cannon Beach, south of Seaside, disclosed continued weeviling in almost all stands under 30 years of age. Plantation stands seem to be hit somewhat harder than natural-grown uneven-aged stands. A bud-moth was found to be attacking terminals of the branches of spruce and to some extent fir in this area. Some trees are quite hard hit, with almost every tip defoliated. Only the current year's growth is affected. No evidence of the insect could be found on the trees or in the duff. Continued studies should be made on this problem next spring, when it is presumed the larvae of the insect will be active in the buds.

In the afternoon of this date, the same party examined the 17-year-old plantations on upper Young's River where weeviling was observed to be heavy in 1948. Trees are again hard-hit this season and 50 percent or more of the leaders have been currently weeviled. Open-grown trees along the roads are taking on a brushy appearance after many years of successive weeviling. The weeviling in the plantation proper, where spacing is close, does not seem to cause excessive distortion or loss of height growth. This is due to immediate dominance of one lateral in taking over the duties of the weeviled terminal. It is natural for an observer who sees only road-side trees to get an erroneous and exaggerated picture of the height growth loss due to weeviling. Volunteer hemlock is appearing rapidly in the spruce plantations that were originally planted to 6 x 6 spacing. Some of the hemlock are even now as tall as the spruce (although much smaller in d.b.h.) and may offer serious competition to the Sitka spruce.

August 9 The morning of this day was taken up with examination of discolored fir as reported by H. E. Haefner of St. Helens Pulp and Paper Company. The area is located approximately 3 miles southwest of the town of Knappa, on highway U. S. 30. Winter kill seemed to be the only answer to the severe loss of needles, many of which are still holding on the trees. On some trees 50-75 percent of the needle compliment of the trees has been killed. Stands affected are principally second growth and are located in mixture with agricultural fields and woodlots. The area is small in size with the infested groups of trees located within a radius of perhaps one mile. No great commercial values are involved - even if the situation should recur.

reported separately to Haefner.

The afternoon of this date was spent in making biological observations on the weevil populations and comparing natural stands with plantation-grown areas whenever they could be found. Weevils in leaders were found to have

mined only down through the 1949 terminals on the trees examined. On trees with shorter leaders it appears likely that the 1948 growth would also be affected. Examination of the brood status in several leaders disclosed practically 100% of the insects had completed their mining for the season and were either in the pupal or prepupal stages. As near as could be determined 2% had pupated with the balance of the brood found as larvae in the typical prepupal cells.

August 10 This day was spent in the field with Wayne Harris, with the objective of comparing height and diameter growth of spruce and hemlock of comparable ages. Several stands were visited; borings were taken of trees to determine the age, and heights and diameters determined by Abney and tape. Stands varying from 40 to 60 years old were found on Young's River about 3 miles above the falls and along the Young's River Loop highway. Results were as follows:

HEMLOCK

	Age	D.B.H.	Height	
	78	19	110')	
	42	13	102')	Young's River Falls
	42	14	117')	
	51	15	124')	
	54	17	134')	Loop Road
	53	14	132')	
Ave.	53	15.3	118'	

SPRUCE

	Age	D.B.H.	Height	
	42	16	96)	
	42	16	94)	Young's River Falls
	69	18	140)	
	52	21	134)	
	54	19	120)	Loop Road
	53	17	148)	
Ave.	52	17.8	122	

It was indicated from these results that spruce and hemlock of the same age are of comparable height. The spruce appeared to average much larger in diameter, however. It is believed that a study of this kind should take into consideration basal areas of the two species in order to arrive at a fair appraisal of the productivity of the two species on any particular site.

August 11 Concluding work at Seaside, a one-day reconnaissance trip was taken down the coast to examine spruce stands and determine the extent of weeviling. Weeviling was encountered wherever spruce was found along the route of travel. Intensive weeviling was noted on the Hebo plantation area east of Hebo R. S. on the Siuslaw National Forest. Considerable damage was also noted on trees in the Cascade Head Experimental Forest. Inability to find personnel on the forest limited the observations that could be made. This area would be ideal for experimental purposes.

Observations were made later this date in Sections 16 and 17, T9S, R10W on the Sitka spruce reported in 1948 by Paul Sanders to be heavily weeviled. Considerable weeviling was found on all young spruce adjacent to the Siletz highway. The conditions noted here are very similar to conditions up and down the coastal area.

STUDY PLANS FORMULATED AS RESULT OF SEASIDE WORK

Crown's foresters are extremely anxious to instigate some studies to evaluate the effect of weeviling. In connection with observations made with Wycoff the following ideas and objectives were considered:

1. Will vigor of tree crown be increased if lower branches of trees are pruned off, thus allowing trees to pitch-out weevil attacks?

2. If above answer is in the affirmative, it might be advisable from a study point of view to prune a number of spruce (100 or more) to a set height and compare with a control of unpruned trees of like number.

3. Observation by Crown Forester E. Wycoff - "Fir and spruce are the only species that have been successful in forcing their way through heavy brush, particularly salmonberry."

4. Observation by Wycoff - "Even if spruce does lose several years height-growth due to weeviling it is better than having no tree growth on areas that are heavy with brush."

5. Observation by Wycoff - The Young's River plantation site should probably never have been planted to spruce as the area had been severely burned twice and was better adapted, under these conditions, to growing Douglas-fir.

6. Observation by Wycoff - Fir acts as a good nurse crop for spruce - especially on burned sites.

7. Observation by Wycoff - Even if spruce on some areas does not amount to much, the spruce has probably served its purpose by acting as a cover for the hemlock by shading-out brush and enabling the hemlock to get a foothold.